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A STUDY ON THE OPERATING EFFICIENCY OF MAJOR CEMENT COMPANIES IN SOUTH INDIA

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ABSTRACT

South India has abundant limestone in the state of Tamil Nadu, Karnataka, Andra Pradesh and Kerala. Hence Cement companies are located here with better basic infrastructure. As a consequence of decontrol of cement prices and the elimination of the freight equalization scheme, cement prices in cement companies in South India (surplus region) were very depressed. This situation seriously affects the financial performance of many cement producers in the South Indian regions. In this juncture the author take a initiative to study the operating efficiency of major cement companies in South India. Andhra Cements, Chettinad Cements, India Cements, KCP Cements and Ramco cements were taken for this study. Productivity of raw material, labour, power and fuel and capital employed were taken into consideration to measure the operating efficiency both in terms of gross value addition and net value addition. Finally competitive advantage of each cement company under study was focused.

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INTRODUCTION

India has acquired a comparative advantage in manufacturing modern cement machinery and therefore has an advantage in the construction of cement plants at international standard. The cost advantage is attributed to the existence of internationally competitive cement machinery manufacturers with reputed foreign technology collaborators. Competition among these manufacturers is so strong that their foreign collaborators continue to transfer their latest technology to maintain and improve the market position of their local partners. Due to combined effects of domestic competition and strong support from foreign technology collaborators, the Indian cement machinery manufacturers have ample capability to supply turnkey cement plants with critical equipment imported from their collaborators.

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India is the second largest cement producing country in the world next to China. More than 150 companies are producing cement at varied quality and with homogeneous characters. The cement industry has been going through a boom period with sustained utilization of over 90 per cent. Demand in 2009 largely was driven by the pass through effect of the stimulus packages announced by the government for housing and infrastructure sectors.[43] While urban demand has slackened significantly semi urban and rural demands in the housing sector still show some robustness. An increasing number of joint families splitting up and increasing urbanization, are some of the causes for the growing demand for houses, the demand for housing expected to grow. In addition the anticipated boost to infrastructure development such as roads, ports airports, power plants and this tendency expected to grow further with the global economy showing early signs of revival, there would be more demand than supply.[45] To meet out the market demand requirements every cement company is going for expansion activity.The capacity, which was 29 million tons in 1981-82, rose to 219 million tons at the end of financial year 2009. The first 100 million tons capacity took eight decades but the second 100 million tons was added in just 10 years.

The Cement Industry produces a variety of cement to suit a host of applications matching the world's best in quality. Cement producers export Cement/Clinker to around 30 countries across the globe and earns precious foreign exchange.

In cement industry the growth rate of capacity expansion was more than the growth rate of cement consumption in India. Consequently, there is an imbalance in demand and supply of cement. South Indian cement companies are having comparative advantage in natural resources and technology but this advantage is accessible to all nationalities from the year 1991. This scenario made the situation somewhat worsen to South Indian cement companies and also these cement companies sacrificed their share of profit with foreign national entrepreneur. This condition still become worsened from the year 1996, the year in which foreign cement companies paw their foot firmly in Indian cement industry.

Automatically these issues reduce the profitability of the cement industry and will face hectic competition. Most of the cement companies are under pressure to reduce its cost on par with global standard within shorter period. The industry has undergone rapid technological up gradation and vibrant growth during the last two decades and some of the plants could be compared in every respect with the best operating plants in the world.

Operative efficiency is also essential to build a brand among the stake holder of the company to sustain in the industry. Hence researcher has made an attempt to study the operating efficiency of asset management in selected major cement companies in South India and their competitive advantage. The objective of this study is to analyse the operating efficiency of the cement companies under study in terms of productivity of raw materials, labour, power and capital employed.

Among the cement companies in South India, researcher selected the companies which are following the consistent accounting period or financial period after globalization. The firms which are inconsistency in following the accounting period have been neglected. The period chosen for the study is 1996-1997 to 2014-2015 and 5 firms have been observed for the study. The accounting period of the selected firm for the study is starting from April to March. The study based on five well known major cement companies belonging to domestic Indian players in South India. The companies chosen for this study are Chettinad

Cements, India Cements, Madras Cements, K.C.P Cements and Andhra Cements. Although the liberalization process started in India in July 1991, it is obvious that its effect could not be reflected immediately after its inception. Thus accounting for the effects of liberalization, the accounting year 1996 has been treated as the initial year of the period under study. It is also the period when government introduced complete globalization for the cement industry. So the study would reveal whether the Indian cement firms enhanced the operating efficiency after the complete globalisation.

For the research, accounting period of 20 years have been selected from 1996-97 to 20014-15. The accounting year 1996 has been chosen as the initial year of the period under study. Government introduced complete globalization for the cement industry in this year. The study period has been classified into four phases. The first phase from the year 1996 to 2000; the second phase starts from the year 2001 to 2005; the third phase of study starts from 2006 to 2010 and the fourth phase of study starts from 2011-2015.

Gupta G.S (1975)[17] examined whether there were economies of scale in the Indian cement industry. It therefore determined cost output (sales) relationships, using the time series and the cross section data, and at the industry levels and firm level. The relationship between cost components like material cost, labour cost, and depreciation cost and output, have also been estimated in order to identify the sources of economies or diseconomies of scale.

Raw material was found to be the elastic factor of production and labour was found to be the most important factor of production in terms of marginal productivity. Marginal and average productivity of labour and raw material were found to be greater than unit this argues in favour of expansion of Indian cement industry. The total factor productivity showed an increasing trend in all India, hence the industry could be encouraged to expand until it reaches the optimum point.

Das, (1991)[11] estimated the fuel coefficient of cement production for the different technology of cement production for the different technology of cement production namely wet process, dry process and dry-with pre heater process. This study observed 95 cement plants in United States during 1972-80, which included each plants annual clinker production, fuel consumption, and the total number of kiln and for each kiln, the data included its capacity and vintage and the process it used. A general observation that had been observed from this study was that the difference in fuel cost between new kiln and an average age kiln was smallest for the wet process and greatest for the dry with preheated process. For the wet process kilns, the share of fuel cost in one dollar's worth of cement averaged over the nine-years period was 9.83 cents according to McBride's estimate and 12.1 cents according to author's estimates.

Bhanu.V, (1995)[2] focused on the concept of capacity utilization. This study had adopted Klein's definition (Klein 1960) of capacity and the Wharton method to measure capacity and capacity utilization. Capacity utilization was computed for a sample of 46 plants (26 firms) for a period of 20 years from 1969 to 1988 and the causes for underutilization in the sample firms were examined for the year 1982-1987.

This study concluded that underutilization of capacity and the resultant stagnation in production was attributed to the existence of infrastructural bottlenecks, which has been empirically established. Thus the effect of liberalization in the cement industry was diluted by the lack of investment in coal and power which resulted in shortages, which in turn led to poorer performance and deceleration in additional investment in the industry.

Muthukrishnan (2002)[26] focused his attention on operating efficiency in terms of capacity utilization and consumption norms and productivity. To fulfil those objectives overall productivity, economic value added productivity, selling distribution and administration productivity and labour productivity has been taken into consideration. This study found out that madras cements and India cements had resorted to low capacity utilization in recent years to have control over the sale price of cement. It also revealed that capital intensity had increased in all the companies implying that more and more capital could be required for generating in these companies.

Sabuj Kumar Mandal, S.M., (2008)[35] focused his attention on the estimates of Total Factor Productivity (TFP) growth in Indian cement industry during the period 1989-90 to 2006-07 using company level data and applying Stochastic Frontier Approach. TFP growth was decomposed into technical progress (TP), technical efficiency change (TEC) and changes in scale component (SC) with a view to gaining some insights into the sources of productivity growth of this industry in the post reform era. Empirical results showed that TFP growth was mainly driven by SC and TP and not by TEC since TE was time invariant in nature. In the light of empirical results, the policy implication was that an industrial policy of exploiting the existing economies of scale was required to be implemented; and to boost the growth of this sector; priority should be given to enhance firms' capability of catching-up by adopting efficiency oriented action plan.

Shigenobu Ohara (2009)[37] in his book stated that Firms used to adopt the sales amount and share of their product line rather – than profit indicators as corporate targets and tried to realize full set type product line, although they generally stressed the importance of contributing to better society. Japanese big and medium-sized firms however have had to quickly commit themselves to the logic of capital to a certain extent in recent years irrespective of their industry and size. They have adopted generally capital efficiency measure as return on equity/return on asset/economic value addition, market value accounting combined balance sheet and individual's performance based evaluation is necessary to assess the operational efficiency of the concern.

Production function is purely a technological relationship between physical outputs over a given period of time. Production function is always related with a given time period, certain level of technology, and inputs used for the production process.

The American productivity centre model derives an equation of profitability with productivity and price recovery factor. The price recovery factor indicates the inflationary effect and productivity gives the amount of resources consumed to produce the organisational output.

Productivity in an organization can be improved by better application of materials, improved processes and machinery and application of more energy both from worker and transformer. The productivity measures are basically efficiency – oriented. There is nothing wrong in being efficiency oriented; however, when the prime motive is efficiency rather than effectiveness, the productivity improvements happen to be generally of a short term nature. A product can be truly termed as an output only if it is marketable, that is, if the customer wants it and are ready to buy it. Too much of quantity orientation entails a danger that one will be so submerged in work, that he/she will not be able to view listen or even think about the customer.[28]

Five major select Cement companies are discussed here to understand the profile of each cement companies in brief.

Andhra Cements was incorporated on 9th December 1936 under the Indian Companies Act, 1913 and was promoted and owned by the Sadu Jain Group. Andhra cement implemented the Rehabilitation Scheme (MS-08) and the Board for industrial and financial reconstruction (BIFR) discharged the Company from the purview of Sick Industrial Companies (Special Provisions) Act, 1985 vide its Order dated 22nd January 2010. In 2008 – Andhra Cements Ltd has re-appointed Mr. K.N. Bhandari as 'Independent Director' of the Company with effect from August 21, 2007. Shri P.K. Goyenka was inducted as Additional Director on the Board with effect from 05.04.2010. He holds office till the date of Annual General Meeting and is eligible for re-appointment. Further, he also appointed as Executive Director of the Company with effect from 5th April, 2010 to look after the day to day operations of the Company. Shri Sujit Kumar Mandal, appointed as Managing Director of the Company with effect from 11th August, 2014 and his appointment was approved by the members in the 75th Annual General Meeting held on 30th September, 2014. Shri K.N. Bhandari, Independent Director has been elected as Chairman of the Company w.e.f 11th August, 2014.

Dr. Rajah Sir Muthiah Chettiar's urge to contribute to the nation building cause combined with his business acumen culminated in establishing the company "M/s. Chettinad Cements Corporation Limited" in 1962 to cater to growing demands of Cement in the country. Chettinad Cements Corporation Limited (CCCL) was incorporated in 1962. Karnataka. Besides cement, the company also produces ready-mix concrete. Chettinad Cements is the flagship company of the Chettinad group which has presence in the cement, logistics, engineering, textiles, and healthcare and education sectors.

The India Cements Ltd was established in 1946 and the first plant was setup at Sankar Nagar in Tamilnadu in 1949. Since then it has grown in stature to seven plants spread over Tamilnadu and Andhra Pradesh. The capacities as on March 2010 have reached 14.05 mtpa. Shri Sankaralinga Iyer was the pioneer of heavy industry in the South. Primarily a banker, he ventured into the field of industry with a rare devotion and confidence with the prime objective of developing major industries in the state. With his banking experience and interest in exploring the mineral potential of South India, he went ahead boldly with his scheme of building a cement plant in the vicinity of Thalaiyuthu, where extensive deposits of limestone were assuredly available. Shri Sankaralinga Iyer with his energy and drive gave the cement project a realistic form and content.

The KCP Cements Limited, one of the country's oldest cement producers, has a strong presence in the South India Market. KCP strategically choose Greenfield plant located at Ramakrishnapuram, Muktyala Village, Jaggayyapet Mandal in Krishna District of Andhra Pradesh because of it's close to large limestone reserves and providing easy access to the key markets of Andhra Pradesh, Tamil Nadu, Karnataka and Orissa.[46] Enthused by the leadership and inspired on the lines of the technological foresight of late Sri Velagapudi Ramakrishna, the KCP foundation was laid in 1941 to subsidize the country with the strength of technology. With ventures vast and varied, the Founder contributed a lot to the growth of Industrial technology. Over the past 68 years his vision has transformed into a 500 crore & growing company that carries the forte of sound technology and an ever evolving nature. Dr. V. L. Dutt – The Chairman & Managing Director and Smt. V.L. Indira Dutt – Joint Managing Director, draft the progress of the group through every endeavour. While, Smt. Kavitha Dutt Chitturi – The Executive Director, the generation next, is all set to be in the forefront and head its operations in the future. Expanding its wings under the dominion of the Executive Directors, the KCP Group is progressively marching in the direction that its founder envisioned, "Excellence through Innovation". Modernize... Indigenize... Never compromise on Technology...A premier producer of cement and industrial machinery, KCP is one among the leading industrial groups in India. Innovation being the premise, dedication and detail are the other assets that have lead to strong proceeds of KCP.

Ramco Cements Ltd is the flag ship company of Ramco Group, a well known major business group of South India having its base at Chennai. The main product of the company is Portland cement manufactured through the five advanced production facilities spread over South India. The cement capacity is 10.49 million tons per annum. The company is the fifth largest cement producer in the country. Ramco Super grade is the most popular cement brand in South India. The company also produces Ready Mix Concrete and Dry Mortar products. In addition, the company also operates one of the largest wind farms in the country.

Operational efficiency has been measured in terms of productivity both in gross value addition and net value addition. This article focuses only on monetary terms of output and input. Gross value addition and net value addition were considered as output. Major sources of value addition in cement industry are rawmaterial, labour, power & fuel and capital employed, hence author consider these parameter to measure the operating efficiency of each cement company under study. The first part of productivity table shows the gross productivity and second part of the study shows the net productivity of cement companies.

PRODUCTIVITY OF RAW MATERIAL

Table – 1: *Gross & Net Productivity of Raw Material*

Gross Productivity of Raw Material					
	Andhra	**Chetti**	**India**	**KCP**	**Ramco**
Mean	6.26	7.74	9.93	5.65	7.50
I Phase	9.64	9.06	11.59	5.66	9.18
II Phase	8.01	8.42	10.29	7.20	7.60
III Phase	6.16	7.82	10.10	6.22	8.48
IV Phase	1.22	5.15	7.73	3.51	4.76
S.D	3.47	1.60	1.70	1.91	1.78
Net Productivity of Raw Material					
Mean	0.88	3.24	3.61	1.98	2.88
I Phase	2.44	4.13	4.34	1.69	3.30

II Phase	1.92	3.23	3.49	2.61	2.95
III Phase	1.39	3.49	4.15	2.76	3.74
IV Phase	-3.03	1.81	2.48	0.87	1.54
S.D	2.80	0.99	1.02	0.97	0.94

India cements productivity was higher than all other cement companies' productivity with respect to raw materials both in terms of gross value addition and net value addition. Chettinad Cements follows next with the productivity of 7.74 in terms of gross value addition and 3.24 in terms of net value addition in an average over twenty years. Among the cement companies in South India, Andhra Cements came in the last position in in overall performance in terms of net value addition. While comparing the performance of two decades from 1996-2015, raw materials productivity in the last phase was lower than third phases. This clearly indicates the inflationary effect on the cost of raw material. The initial phases of the study concentrate more on gross value addition rather than net value addition, whereas in the final phase cement companies gave due regard to net value addition due to hectic competition.

PRODUCTIVITY OF LABOUR

Table – 2: *Gross & Net Productivity of Labour*

Gross Productivity of Labour					
	Andhra	**Chetti**	**India**	**KCP**	**Ramco**
Mean	13.19	22.84	17.10	10.89	22.40
I Phase	17.48	17.32	16.92	10.23	22.22
II Phase	14.99	23.79	15.64	8.87	21.60
III Phase	14.19	29.32	20.58	12.75	27.19
IV Phase	6.10	20.44	15.26	11.73	18.60
S.D	6.79	6.88	3.19	2.19	3.92
Net Productivity of Labour					
Mean	2.88	9.35	6.23	3.66	8.61
I Phase	4.51	7.88	6.35	2.98	8.01
II Phase	3.57	8.95	5.30	3.21	8.41
III Phase	3.70	12.95	8.40	5.64	12.03
IV Phase	-0.25	7.17	4.90	2.81	6.00
S.D	3.30	3.25	1.96	1.43	2.78

Labour productivity shows the gross value and net value added during the particular period of time for each crore spend on employee cost. Labour productivity is higher in Chettinad Cements than all other cement companies in South India in terms of gross and net value addition. Ramco Cements follows the second position with less standard deviation. In the last phase of the study, the productivity has reduced gradually except the Chettinad Cements and KCP Cements. In the third phase of the study all the cement companies in South India did well in labour productivity when compared with overall average.

PRODUCTIVITY OF POWER AND FUEL

Table – 3: *Gross & Net Productivity of Power and Fuel*

Gross Productivity of Power and Fuel					
	Andhra	**Chetti**	**India**	**KCP**	**Ramco**
Mean	2.60	4.31	4.04	5.32	4.71
I Phase	2.93	4.69	4.02	6.27	4.27
II Phase	2.87	3.70	3.58	4.36	4.54
III Phase	3.42	4.94	4.43	6.59	5.22
IV Phase	1.20	3.80	4.14	4.06	4.82
S.D	1.25	0.81	0.46	2.21	0.55
Net Productivity of Power and Fuel					
Mean	-0.36	1.81	1.47	1.83	1.79
I Phase	0.75	2.14	1.50	1.79	1.54
II Phase	0.68	1.43	1.21	1.58	1.76
III Phase	0.79	2.24	1.82	2.92	2.31
IV Phase	-3.64	1.33	1.33	1.04	1.55
S.D	2.83	0.60	0.37	0.92	0.45

With respect to power productivity KCP cements operating efficiency was greater compared to all other select cement companies in South India in the past two decades from 1996 to 2015.. But it has gradually improved in India Cements in the last phase, this was because of captive power plant in India Cements in the last phase. In all the cement companies under study were declined in the last phase because of increase in the power and fuel cost. Cement companies under the study were performed well in the third phase and its performance were higher than the overall average of its own performance.

PRODUCTIVITY OF CAPITAL EMPLOYED

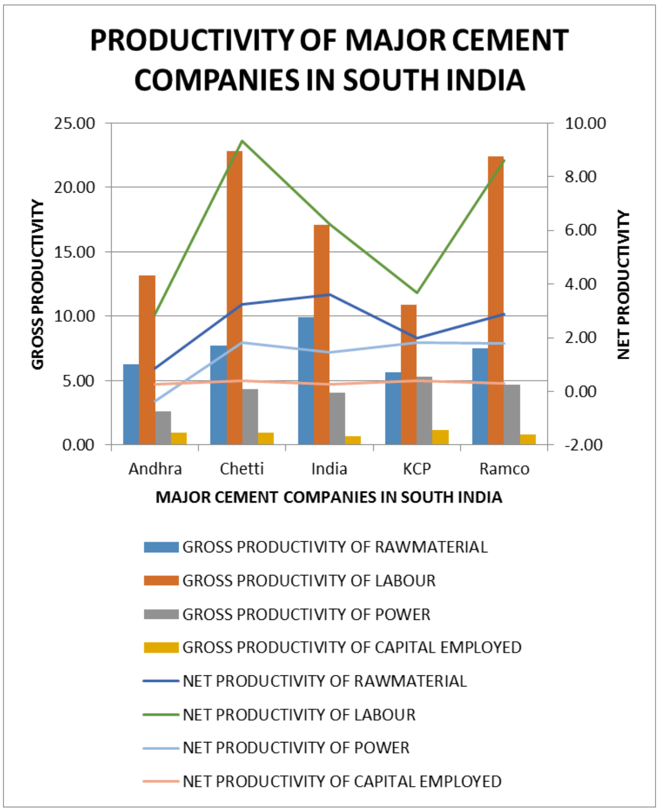
Table – 4: *Productivity of Capital Employed*

Gross Productivity of Capital Employed					
	Andhra	**Chetti**	**India**	**KCP**	**Ramco**
Mean	0.96	0.95	0.71	1.19	0.80
I Phase	2.04	0.86	0.78	1.37	0.70
II Phase	1.00	0.69	0.46	1.12	0.72
III Phase	0.68	1.15	0.64	1.36	0.90
IV Phase	0.11	1.14	0.95	0.90	0.88
S.D	1.20	0.27	0.22	0.32	0.17
Net Productivity of Capital Employed					
Mean	0.24809	0.389497	0.252333	0.404463	0.301931
I Phase	0.569644	0.392774	0.288267	0.398126	0.251493
II Phase	0.228574	0.262441	0.154181	0.403349	0.280906

III Phase	0.191607	0.503289	0.260474	0.600419	0.393392
IV Phase	0.002536	0.401979	0.30641	0.215956	0.281932
S.D	0.36708	0.126629	0.078569	0.175742	0.090207

Capital employed productivity results proved that KCP Cements performance was better than all other cement companies under study both in terms of gross value addition and net value addition. This effect is because of state of art technology implemented in the operation of KCP Cements. But in the last phase of the study showed the result that it crossed the scale of economies and currently it is in the diseconomies. Even though Andhra Cements follows second in the gross productivity, it is not appreciable because of huge standard deviations both in gross and net productivity. This clearly shows that the replacement decision is not up to the mark compared to all other major cement companies. Chettinad Cements, Ramco Cements, India Cements productivity was in the consistent manner this proved that replacement of asset took place to meet out the "quality value addition" to the production of cements.

From the above analysis individual factors to the production have been analysed independently. With this clear understanding it will be easier for the reader to understand the consolidated way of analysis through chart. Primary axis represents the gross productivity of raw material, gross productivity of labour, gross productivity of power and fuel and gross productivity of capital employed. The secondary axis represents the net productivity of rawmaterial, net productivity of labour, net productivity of power and fuel and net productivity of capital employed.



The study has been undertaken to analyse the operating efficiency of select cement companies in South India, which reveals the fact that in India Cements, the productivity of raw material was higher than the average ratio in terms of gross value addition and net value addition. With this competitive advantage it is sustaining in the South Indian market. With regard to Chettinad Cements the productivity of labour, in terms of gross value addition and net value addition was higher. Hence Chettinad Cements competitive advantage is human resources. KCP Cements competitive advantage is with the usage of power and fuel and capital employed hence it is possible to sustain with the low productivity of raw material and labour. Ramco Cements is not the pioneer in any competitive advantage which is discussed earlier but moderately performing in all respect viz., raw material consumption, extracting the value addition from its employee and utility of power and fuel for the production and optimum usage of capital employed. Hence it is possible for the Ramco Cements to lead the marking performance in South Indian Cement industry. Cement companies under study are performing well in cement industry in South India except Andhra Cements, which is coming last in all net productivity performance. Hence it is essential to merge with the high state of art technology executed cement companies to change its performance rapidly rather than concentration on the slow phase of change in the productivity.

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